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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. An insulation material that includes (a) particles of a combustible insulation material that are coated with a fire resistant material and bonded together with a binder material and/or (b) an open celled foam of the combustible insulation material having internal surfaces coated with the fire resistant material.
2. The insulation material defined in claim 1 wherein the fire resistant material is an intumescent material.
3. The insulation material defined in claim 1 or claim 2 wherein the binder material at least substantially fills interstices between coated particles.
4. The insulation material defined in claim 3 wherein the binder material is the coating material.
5. The insulation material defined in any one of the preceding claims wherein the particles are at least substantially encapsulated by the fire resistant material.
6. The insulation material defined in any one of the preceding claims wherein the particles include a fire retardant material.
7. The insulation material defined in any one of the preceding claims wherein the coating material for the particles and/or the binder

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material that binds the particles together have water-proofing and/or vapor-proofing properties.

- 5 8. The insulation material defined in any one of the preceding claims wherein the coating material and/or the binder material include fibre reinforcement that improves the mechanical properties of the insulation material.
- 10 9. The insulation material defined in any one of the preceding claims wherein the combustible insulation material includes recycled insulation material.
- 15 10. A method of manufacturing an insulation material that includes coating particles of combustible insulation material with a fire resistant material.
- 20 11. The method defined in claim 10 includes coating particles of combustible insulation material with a liquid form of the fire resistant material.
- 25 12. The method defined in claim 11 further includes transferring the particles with the wet coating of the fire resistant material into a mould, filling the interstices with further liquid fire resistant material, and removing the insulation material from the mould after the liquid fire resistant material has dried or set to a sufficient extent.
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- 35 13. The method defined in claim 11 further includes transferring coated particles into a mould after the liquid form of the fire resistant material has dried into a solid form, filling the

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interstices between the particles in the mould with a liquid binder material, and removing the insulation material from the mould after the liquid binder material has dried or set to a sufficient extent.

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14. The method defined in claim 11 further includes transferring coated particles into a mould after the liquid form of the fire resistant material has dried into a solid form, filling the interstices between the particles in the mould with a polyurethane or polyisocyanurate foamable mixture, and removing the insulation from the mould after the foamable mixture has reacted and formed a foam product.

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15. The method defined in claim 10 includes forming free-flowing loose-fill agglomerates of the coated particles.

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16. The method defined in claim 10 includes forming free flowing loose-fill agglomerates of the coated particles and with a binder material that sets to hold the particles together.

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17. The method defined in claim 10 includes forming panels or other shaped products from the coated particles.

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18. The method defined in claim 17 includes forming panels or other shaped products by mixing the coated particles with a binder material.

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19. The method defined in claim 18 wherein the binder material at least substantially fills interstices between coated particles in the products.

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20. The method defined in any one of claims 17 to 19 includes forming panels or other shaped products having a uniform distribution of coated particles, whereby the insulation material can resist a fire coming from any direction.
21. The method defined in any one of claims 17 to 20 includes applying metal facings or non-metal facings to the panels or other shaped products.
22. The method defined in any one of claims 10 to 20 includes manufacturing the insulation material from particles having a range of different particle sizes.
23. The method defined in any one of claims 10 to 22 includes manufacturing the insulation material by coating the particles with a range of different coating thicknesses.
24. The method defined in any one of claims 10 to 23 includes manufacturing the insulation material with layers of different sized particles and/or different coating thicknesses so that the insulation and fire resistance properties of the insulation material varies through its cross section.
25. The method defined in claim 24 includes manufacturing the insulation material with smaller particles and a thicker fire resistant coating located near the surfaces of the material and larger particles and a thinner coating located in the interior.

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26. The method defined in claim 24 or claim 25 includes forming the layers with a binder material to hold the particles together within a layer and to hold the layers together.
- 5 27. The method defined in claim 26 includes incorporating microspheres of glass or ceramic material (a) into the adhesive layer binding the facings to the insulation particles to improve the fire resistance at that boundary and/or (b) in the binder material as a filler to reduce the interstices between particles and thereby improve the insulation and the fire resistance.
- 10 28. The method defined in claim 27 wherein the microspheres are hollow.
29. The method defined in any one of claims 10 to 28 includes manufacturing the insulation material from particles of different insulation materials.
- 20 30. The method defined in claim 29 includes manufacturing the insulation material from combustible insulation materials and incombustible insulation materials.
- 25 31. A method of manufacturing an insulation material that includes coating an open celled foam of a combustible insulation material with a material that is fire resistant and contributes to the rigidity of the insulation material.
- 30 32. The method defined in claim 31 includes coating the open celled foam by impregnating the foam with the fire resistant material.
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33. The method defined in claim 31 or claim 32 wherein the insulation material is suitable for structural applications.
- 5 34. The method defined in any one of claims 31 to 33 wherein the fire resistant material is sodium silicate or an intumescent material.
- 10 35. A product that includes the insulation material defined in any one of claims 1 to 9.